

IN THE CLAIMS:

- 1 1. (currently amended) A multimode electrochemical sensing array comprising a
2 semiconductor chip having formed thereon:
- 3 A. an Ion Selective Field Effect Transistor, said transistor having an exposed
4 Gate for contact with a test solution when immersed therein, said Gate being surrounded
5 by, but spaced from, a conductive surface that serves as both an electrode and a light
6 shield for the transistor;
- 7 B. a plurality of electrodes spaced remotely from said transistor, at least one of
8 said electrodes being connectable in circuit with said conductive surface and with an ex-
9 ternal current source to provide a current for electrochemical determination of ~~a param-~~
10 ~~eter~~ two or more parameters of said solution.
- 1 2. (original) A multimode electrochemical sensing array according to claim 1 in
2 which said current source is polarized to provide a titrant in the vicinity of said Gate.
- 1 3. (original) A multimode electrochemical sensing array according to claim 1 in
2 which said current source is polarized to provide a titrant in the vicinity of said at least
3 one remotely spaced electrode.
- 1 4. (original) A multimode electrochemical sensing array according to claim 1 in
2 which said remotely spaced electrodes includes comprise a first pair of electrodes, each
3 of a first area , and a second pair of electrodes, each of a smaller area than said first area,
4 said electrodes being connectable in circuit with an external current source and an exter-
5 nal voltage meter to provide conductivity measurements of a test solution in which they
6 are immersed.

- 1 5. (original) A multimode electrochemical sensing array according to claim 1 in
2 which said remotely spaced electrodes include at least one electrode for performing oxi-
3 dation/reduction measurements with respect to an external reference electrode.
- 1 6. (original) A multimode electrochemical sensing array according to claim 1 in
2 which said remotely spaced electrodes include at least one electrode connectable through
3 a potential regulating element to said conductive surface for limiting the potential on said
4 surface.
- 1 7. (original) A multimode electrochemical sensing array according to claim 6 in
2 which said potential regulating element comprises a varistor.
- 1 8. (original) A multimode electrochemical sensing array according to claim 1 in
2 which said remotely spaced electrodes include at least one electrode connectable to
3 ground to thereby connect a test solution to ground potential when desired.
- 1 9. (original) A multimode electrochemical sensing array according to claim 1 in
2 which said at least one electrode is connectable in circuit with an external source of con-
3 stant current.
- 1 10. (original) A multimode electrochemical sensing array according to claim 1 in
2 which said at least one electrode is connectable in circuit with an external source of cur-
3 rent that increases during its application.
- 1 11. (original) A multimode electrochemical sensing array according to claim 1 in
2 which said at least one electrode is connectable in circuit with an external source of cur-
3 rent that increases linearly during its application over at least some range thereof.